REMARKS

STATUS OF CLAIMS

Claims 1-24 have been pending.

Claims 1, 2, 3, 10, 12, 13, 16, and 23-24 are rejected under 35 USC 102(b) as being anticipated by Perlman (US Patent No. 5,398,242).

Claims 4-7, 14, 15 and 17 are rejected under 35 USC 103(a) as being unpatentable over Perlman.

Claim 9 and 19-22 are allowed.

Claim 18 is objected to as being allowable if amended into independent form including all of the limitations of the claims from which it depends.

Claims 1, 5, 10, 12, 13, 15, 16, 17, 18, 23 and 24 are amended, new claims 25 and 26 are added, and thus, claims 1-26 remain pending for reconsideration, which is respectfully requested.

No new matter has been added in this Amendment. The foregoing rejections are hereby traversed.

PRIOR ART

Perlman

In the present invention, data to be transferred to a third node from a first node is written at the second node in a data portion of a packet received from the first node and addressed to the third node, and the received packet at the second node with the data to be transferred to the third node is transferred to the third node.

In contrast to the present invention, as described in column 6, lines 24-39 of Perlman, an end system sends an explorer message onto the LAN to determine the route (path) a message should take. Information of each path is added (written) to the explorer message and is thus collected. The information of each path includes the address of the desired destination, the maximum packet size, and the cost. However, Perlman does not provide the present invention's claimed packet transfer technique, in which "transferring a write packet from the first node to the second node; storing data to be written in a data portion of a packet addressed to the third node in the data portion of the write packet at the second node; and transferring the write packet from the second node to the third node" (amended independent claims 1 and 23). Therefore,

Perlman does not show all of the elements of the claimed invention".

More particularly, the Examiner rejects all of the independent claims 1, 10, 12, 13, 16, and 23-24 over Perlman. See, pages 2-3, item 3 of the Action. Perlman discloses a method of assigning LAN numbers to LANs in a network comprising of LANs and bridges connected to the LANs (Abstract). The Examiner asserts that Perlman's all-paths explorer packet and special explorer broadcast message is same as the present invention's receiving in a second node a write packet from a first node and writing in the second node data targeted for a third node.

However, Perlman's explorer packets differ from the present invention's packets generated by network nodes to transfer data to other nodes. Perlman relates to data packet addressing (routing) in bridged LANs, whereas the claimed invention relates to managing generated packets on the network bus to transfer data to other nodes (see, column 4, lines 3-24). Therefore, the claimed invention relates to managing access to a network bus by the network nodes. Clearly, to one skilled in the art, the concept of network routing differs from the present invention's concept of network access (write packet) management.

In particular, for example, Perlman's bridge in column 6, lines 24-62, does not write data addressed to another node in an explorer message, as suggested by the Examiner, but the bridge simply routes a received explorer message by writing routing information in the explorer message. Perlman's routing information differs from the present invention's, "storing data to be written in a data portion of a packet addressed to the third node in the data portion of the write packet at the second node" (amended independent claims 1 and 23). Accordingly, Perlman does not relate to the claimed invention, does not disclose or suggest the claimed invention, and it is not a proper prior art.

The Examiner also appears to assert that Perlman is directed to a non-ring network, because end-systems, bridges and LANs can all be considered nodes, and as shown in FIG. 1, the network including the end-systems, the bridges and the LANs can be looked at as in a star form. However, Perlman relates to data packet route determination among connected LANs. In Perlman, each LAN can have a ring topology as disclosed in column 3, lines 50-53, and in FIG. 1 using the circle designations. However, it is not appropriate to characterize bridged LANs as having a topology, because topology refers to the shape of a LAN to control bus access for data communication by the LAN nodes.

Therefore, in contrast to Perlman, the claimed invention relates to data communication by LAN nodes in a non-ring network. The claim preambles expressly recite "transferring

packets between a plurality of nodes ... connected by a bus ... not in a ring form." Perlman's node on one LAN is not in communication via a bus (a common communication medium) with another node on another bridged LAN, and such a characterization of bridged LANs is an unreasonable interpretation. See, also Perlman, column 1, lines 29-31.

INDEPENDENT CLAIMS 1, 16 AND 23

Independent claims 1 and 23 are amended to further emphasize the patentably distinguishing features of the present invention. Support for the added features of independent claims 1 and 23 can be found, for example, at page 9, line 26 to page 10, line 10. Support for the new dependent claims 25 and 26 can be found, for example, in page 1, lines 9-13 and page 22, lines 16-25 of the present Application.

The Examiner allows independent claim 19.

If independent claim 19 is allowable, independent claims 1 and 23 should also be allowable, because all are drawn to nodes in a non-ring network, in which if a second node receives a write packet from a first node, the second node can write data in the received write packet that is targeted for a third node.

Accordingly, in contrast to Perlman, independent claims 1 and 23, using the recitation of claim 1 as an example, recite, "transferring a write packet from the first node to the second node; storing data to be written in a data portion of a packet addressed to the third node in the data portion of the write packet at the second node; and transferring the write packet from the second node to the third node" (amended claim 1).

Further, in contrast to Perlman, new dependent claims 25 and 26, recite that if a second node receives a write packet from a first node, the second node can write data, which can include "image data," in the received write packet that is targeted for a third node.

Regarding independent claim 16, in contrast to Perlman,

> 16. (CURRENTLY AMENDED) A packet transfer control circuit incorporated in a first node to transfer packets to a plurality of second and third nodes, in which the first, second, and third ~~node and the plurality of second~~ nodes are not connected in a ring form~~, wherein~~ and each packet includes a data portion for storing data, the control circuit comprising:
>
> a processor transferring to each second node a write packet, the data portion of which stores data, and then transferring another ~~a further~~ write packet, the data portion of which is blank, wherein each second node stores data in the blank data portion and transfers the packet to the third nodes.

NEWLY INDEPENDENT CLAIMS 5, 15, AND 18

Dependent claims 5, 15, and 18 (objected to as allowable), are amended into independent form.

Objected to dependent claim 18 is amended into independent form, so it is understood that new independent claim 18 is allowable. Regarding newly independent claims 5 and 15, it is asserted that if the Examiner's allows dependent claim 18, dependent claims 5 and 15 should also be allowed, because dependent claims 5 and 15 recite at least one of a same patentably distinguishing feature recited in objected to dependent claim 18.

The Examiner's rationale rejecting dependent claims 5 and 15 is on page 4, item 10 of the Office Action. Essentially, the Examiner asserts that the "guide packet" of the claimed invention is well known. The Examiner asserts that acknowledgement packets are well known, and can be written on to confirm that an action has taken place, i.e., that a packet has been received without errors.

The recitations of dependent claims 5, 15, and 18 are amended for clarity so that the "guide packet" cannot be characterized as an acknowledgement packet as suggested by the Examiner, as follows.

> 5. (CURRENTLY AMENDED) ~~The packet transfer method according to claim 1~~A method of transferring packets between a plurality of nodes including a first node, a second node, and a third node connected by a bus but not connected in a ring form, the method comprising:
>
> transferring a write packet from the first node to the second node;
>
> storing data to be written in a data portion of a packet addressed to the third node in the data portion of the write packet at the second node; and
>
> transferring the write packet from the second node to the third node,
>
> wherein the write packet transferring comprises transferring from the first node to the second node a guide packet ~~to the second node storing~~that stores guide information indicating a state of the write packet, before the first node transfers the write packet to the second node, and
>
> wherein the data storing by the second node comprises writing ~~the guide information to~~as the guide information of the guide packet ~~to indicate~~information indicating that the data has been written to the write packet by the second node.

A conventional acknowledgement packet differs from the claimed "transferring to the second node a guide packet ~~to the second node storing~~that stores guide information indicating a state of the write packet, before the first node transfers the write packet to the second node," because the "guide packet" is transferred before a write packet transmission. In contrast, conventionally a receiving node transfers an acknowledgement packet back to the originating packet transmitter after receipt of the packet by the receiving node. Further, the present invention's claimed "guide packet" cannot be deemed an acknowledgment packets, because in a non-ring network, the transferred "guide packet" does not return to the transferor node.

A benefit of the "guide packet" is improved data transfer efficiency among nodes in a non-ring network. A conventional acknowledgement packet simply does not provide guide information to downstream nodes regarding subsequent packets received. Support for dependent claims 5, 15 and 18 can be found, for example, on page 19, line 29 to page 21, line 8, of the present Application.

Therefore, the Applicants respectfully disagree with the Examiner, because none of the relied upon references, including Perlman, disclose or suggest the idea of using a guide packet in a non-ring network, and the Examiner fails to cite any documentation supporting the Examiner's well-known assertion, which is hereby traversed. Accordingly, it is believed that dependent claims 5, 15 and 18 (objected to as allowable), which are now amended into independent form, are in condition for allowance.

INDEPENDENT CLAIMS 10 AND 24

In regard to independent claims 10 and 24, the Applicants assert that if independent claim 19 is allowable, independent claims 10 and 24 should also be allowable, because all are drawn to at least providing nodes in a non-ring network, in which if a second node receives a blank packet from a first node, the second node can write data in the received blank packet that is targeted to a third node. In particular, independent claims 10 and 24 are amended for clarity, and using claim 10 as an example, recite, "an identification circuit identifying whether the data portion of the packet is blank; and a processor ... determining that data can be written to the data portion of the packet, when the data portion of the packet is blank according to the identifying by the identification circuit, and transferring the packet to a third node, wherein the first node, the second node, and the third node are not connected in a ring form."

The Examiner in pages 2 and 3 (regarding claim 10) of the Office Action, relies on Perlman's operations 420-422 of FIG. 10C, in column 22, line 23 to column 23, line 44, to reject independent claims 10, 16 (also discussed above) and 24. However, Perlman, in column 22,

lines 23-32, discloses checking if a route field of an explore message is empty, so that if the route field of the message is not empty, the message was not originated on the LAN from which it was received and the message is discarded. In Perlman, because the bridges will ignore all paths explore messages which do not have an empty route field, a counterfeit all paths explorer message will only be transmitted on the one LAN for which it was specifically created (column 23, lines 23-27). In contrast to Perlman, the claimed invention determines at a node whether a "data portion" of a received packet is blank, so that data can be written in the "data portion" if the "data portion" is blank (see, page 9, line 25 to page 10, line 20; and page 12, line 3 to page 13, line 4). A data portion of a packet differs from a route field of a packet. A benefit of the present invention is that an empty blank packet received by a node is efficiently used, in which, if the node has data to be transferred to another node, the node uses the received blank packet to transfer the data to the other node.

INDEPENDENT CLAIM 12

In regard to independent claim 12, the Applicants assert that if independent claim 9 is allowable, independent claim 12 should be allowable, because claims 9 and 12 are directed to the same patentably distinguishing feature of the invention. However, claim 12 is amended to correct a typographical error introduced when claim 12 was previously amended as well as to improve form for clarity, as follows.

> 12. (CURRENTLY AMENDED) A packet transfer control circuit incorporated in a first node to transfer a packet to a second node and a third node, in which the first node, the second node, and the third node are not connected in a ring form, ~~wherein~~ the packet includes a data portion for storing data, ~~and wherein~~ the second node is downstream from the first node, and the third node is upstream from the first node, the control circuit comprising:
>
> a processor retaining data addressed to the third node, and rewriting the data stored in the data portion of the packet, which is received by the first node from the second node, ~~with~~ to include the retained data addressed to the third node, when the data stored ~~data~~ in the data portion of the packet received from the second node is addressed to the third node.

Support for rejected claim 12 and allowed claim 9 can be found, for example, in page 21, line 9 to page 22, line 25 of the present Application. In contrast to Perlman's FIG. 1 configuration, which is relied upon by the Examiner in page 3 of the Office Action, the present invention as recited in claims 9 (allowed) and 12 provides the advantage of completing two transfers in one cycle (page 22, lines 16-25 of the present Application). Claim 12 is amended to improve form accordingly to recite, "rewriting the data stored in the data portion of the packet,

which is received by the first node from the second node, ~~with~~ to include the retained data addressed to the third node, when the data stored ~~data~~ in the data portion of the packet received from the second node is addressed to the third node." Therefore, at least independent claim 12 is also allowable.

INDEPENDENT CLAIM 13 AND DEPENDENT CLAIM 3

The Examiner does not provide a rationale for rejecting the patentably distinguishing features of independent claim 13 as well as dependent claim 3. Independent claim 13 is amended to be consistent with dependent claim 3.

In contrast to Perlman, amended independent claim 13 recites,

> 13. (CURRENTLY AMENDED) A packet transfer control circuit incorporated in a first node to transfer a plurality of packets to a second node and a third node, the first node, the second node, and the third node not connected in a ring form, wherein each packet includes a data portion for storing data, the control circuit comprising:
>
> a processor transferring a plurality of write packets, the data portion of which is blank, to each of the second and third nodes based upon information indicating ~~so~~ that the second and third nodes substantially simultaneously store data in the data portion of the write packets received from the first node.

See, FIG. 1 regarding node C1 as the first node, nodes A1 and E1 as the second nodes, and remaining nodes as the third nodes, and page 13, line 5 to page 14, line 23 of the present Application. In the present claimed invention, node C1 has knowledge that nodes A1 and E1 can substantially simultaneously store data in the data portion of write packets received from the node C1.

Also in contrast to Perlman, dependent claim 3 recites, "wherein the first node has information indicating that a plurality of the second nodes substantially simultaneously transfer packets to a plurality of the third nodes, and the write packet transferring comprises transferring a plurality of write packets to the plurality of the second nodes based on the information."

Therefore, it is believed that claims 3 and 13 are allowable, which is respectfully requested.

CONCLUSION

In view of the claim amendments and the remarks, withdrawal of the rejections of claims 1-4 and 6-17 and allowance of claims 1-4, 6-17 and 23-26 are respectfully requested.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

Respectfully submitted,
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